THE
Monthly Regiſter
OF
EXPERIMENTS
AND
OBSERVATIONS
IN
Huſbandry and *Gardening.*

For the Months of APRIL *and* MAY, 1722.

Wherein is explain'd,

I. The Method of bringing Herbs, Flowers, and Fruits, to Perfection in the Winter: With an Account of a New Invented Wall, to forward the ripening of Fruit, *&c.*

II. An Account of Tranſplanting Forreſt-Trees and Fruit-Trees of any Bigneſs, in the Summer Seaſon ; ſo that Gentlemen may make compleat Plantations in a few Days, as effectually as if they had been growing for many Years.

By RICHARD BRADLEY, *Fellow of the*
Royal Society.

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Lane. 1722.

Price One Shilling Six-Pence.

TO THE

RIGHT HONOURABLE

ROBERT WALPOLE, *Eſq*;

Firſt Lord-Commiſſioner of
the Treaſury, *Chancellor*
of the Exchequer, *&c. &c.*

SIR,

THE Reaſons which encourage me to hope for Your Protection of the following Papers, are founded upon Your generous Character, which declares You the Patron of every Thing which tends to the Advantage or Improvement of Your Country; and it is no ſmall Happineſs, that after great Expence and Study, I have an Opportunity of preſenting a Gentleman of Your polite Taſte with ſome New Diſcoveries, which will gain Time in raiſing Plantations, and fill our Gardens with Fruit at every Seaſon of the Year; which I hope will afford You ſome Amuſement in Your Leiſure Minutes, eſpecially ſince Your Genius has led You to purchaſe one of the fineſt Collections of Plants in the Kingdom.

This, *Sir*, is Engagement enough for me to offer the following

Sheets to Your Peruſal, and that I may have the Honour of declaring to the World that I am, with the greateſt Reſpect,

SIR,

Your Moſt Obedient

Humble Servant,

R. BRADLEY.

BRITISH MUSEUM
15 JUN 60

PREFACE.

AS this Work wears a different Title, from my former Monthly Treatiſe of Huſbandry and Gardening, it is neceſſary I ſhould ſay a Word or two by way of Preface concerning it. When I undertook the laſt Year's Memorandums, relating to the Improvement of the landed Eſtates, the Obſervations were chiefly my own; and my Intent was then not only to render them uſeful, but to eſtabliſh a general Correſpondence among all the curious Men in Britain, *in Order to raiſe theſe Arts to a much higher Pitch than ever they were before. This Undertaking has had that good Fortune, that ſeveral curious Societies of ingenious Men, are now become correſpondent with one another, and by their aſſiſting each other in making Experiments and Obſervations; we have Room to expect many extraordinary Diſcoveries, which may be brought into general Practice, and prove greatly uſeful to the Publick.*

This no Perſon ſingly could have ever brought to paſs; for neither could a ſingle Purſe go throw ſuch a Deſign, nor one alone *endure the Fatigue of perſwading a People to ſtep out of their common Road, tho' it would be never ſo much for their Advantage. As Experiments in theſe Arts, require ſome Time to give Evidence of their Worth, ſo it could not be expected that all the Queries which were propos'd and ſent to me the laſt Year, could be anſwer'd in the Compaſs of Time, in which my monthly Papers were publiſhing.*

Since I have now prevail'd upon the Curious in ſeveral Counties in England, *to eſtabliſh Societies, and hold Correſpondence with one another; whereby whatever is found of publick Uſe, may be inſerted in ſuch a Regiſter, to the Honour of the Diſcoverer, and for the Welfare of every Particular. In ſuch an Undertaking, it will appear that I ſhall act rather as a Secretary, than as a Director, by communicating what Diſcoveries come to my Hands, from one Society to the reſt, and ſhall take what Care I can, to bring them abroad correct and perfect.*

I take this Opportunity of acknowledging my Obligations for many Remarks and ingenious Diſcoveries, communicated by ſeveral noble and curious Perſonages, which were inſerted in my monthly Papers for the laſt Year. The Letters which yet remain in my Hands unanſwer'd, will be explain'd in this Work, as ſoon as the Experiments made upon them are perfected.

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THE Monthly Regiſter OF EXPERIMENTS AND OBSERVATIONS IN *Huſbandry* and *Gardening*.

For the Month of APRIL, 1722.

The Method of Making and Ordering ſuch a Garden as will bring Fruits and Herbs for Table-Uſe in uncommon Seaſons.

I HAVE been now about a Twelve Month collecting ſuch Examples in the Way of forwarding and retarding the Ripening of Fruits, as may give them to us in thoſe Seaſons when Nature is unactive among Vegetables, or does not of her own Accord produce any Fruit: I mean the Months of *November*, *December*, *January*, *February*, *March*, and *April*. Theſe Months are ſtiled in *England*, the Dead Months, becauſe there is then no Fruit Naturally growing upon the Ground, tho' in Countries nearer the Equinoctial there are ſeveral Excellent Fruits ripe in theſe Months, without any Art; ſo much Influence has the Sun then in the Southern Parts, that they rejoyce in their Natural Fruits when our Gardens are vacant, unleſs by the Help of Art.

The Methods which have been taken with us to ripen ſome few Fruits out of their Natural Seaſon, have been various, and but few of them ſucceſsful; but however the Artiſts have failed of the Perfection they aim'd at; yet, if they have had any Fruit at all, it has, for its bare Appearance Sake, in an uncommon Seaſon, ſo much recreated the Minds of the Curious, that it has been enough eſteem'd, to bring good Profit to the Gard'ner that rais'd it.

Mr. *John Millet*, whom I have ſo often mention'd on account of ripe Cherries in *February*, was the chief if not the only Gard'ner in *England*, for bringing his

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his Fruit out of Seaſon to good Ripeneſs and Perfection. I have eaten in *February*, Duke Cherries, ſo ripe that they were almoſt black, and, in my Opinion, were as well taſted as any of the Summer Growth, which depended upon his juſt Management of them, in applying a due Heat at proper Times; but where that has not been rightly underſtood, and the Fruit has been forced unnaturally, or with too great Violence, it prov'd always inſipid.

Some Men of Quality have, for theſe Reaſons, adviſed me to publiſh my Thoughts concerning the Means which ſhould be uſed to give them good Fruits at uncommon Seaſons; and particularly one Curious Gentleman, who deſigns to make a Garden on purpoſe for ſuch Curioſities; and this I hope to preſcribe in ſuch a Method as will not be very expenſive.

The Sorts of Fruit which I ſhall propoſe are, CHERRIES of the Early Sorts, which bear well, *viz.*

The *May* Cherry.
The *May* Duke-Cherry.

ABRICOTS are:

The Maſculine Abricot.
The Bruxelles Abricot.

PEACHES are:

The Avant-Peach.
The Anne-Peach.
The early *Newington* Peach.
The *Albemarle* Peach.
The Brown Nutmeg.

NECTARINES are:

Mr. *Fairchild's* early Nectarine.
The Alrouge Nectarine.
And the *Newington* Nectarine.

CURRANS are:

The large *Dutch* White.
The large *Dutch* Red.

GOOSEBERRIES are:

The *Dutch* White.
The *Dutch* early Green Gooſberry.
The Walnut Gooſberry.

To theſe Fruits we may likewiſe add Two or Three Sorts of GRAPES, as

The White and Black Sweet-water.
The large *July* Grape, whoſe Berries are equal on the Bunches.
The Malmſey.
The Royal Muſcadine.
The *Burgundy* Grape.

All theſe may be planted againſt a Paling of Five Foot high, made after the following Manner.

The Stakes to ſupport this Paling, muſt be ſet about Six Foot diſtance from one another; to which we are to nail whole Deal Boards of Twelve Foot long, well jointed to one another, and plow'd on the Edges, ſo as to let in Lathes, that thereby the Steam of the Dung, which is to lye at the Back, may not get among the Plants, for where ſuch Steam comes it cauſes a Mildew.

The Deals if they are not quite an Inch thick, will be apt to ſcorch the Trees upon the firſt Application of the hot Dung, or if they are much thicker, the Artificial Heat apply'd to their Backs upon the Time it begins to decline, will not be powerful enough to warm them thorough, and then the Dung muſt be oftner refreſh'd.

Thus a Paling of 60 Foot long, will anſwer to Five Deals in length, and if it be ſomewhat above Five Foot high, will take up in all Thirty Deals.

When this is up, we may mark out a Border on the South-Side of it, about Four Foot wide; and on the Outſide of the Border, we muſt faſten to the Ground, in a ſtreight Line, ſome Scantlins of Wood about Four Inches thick, to reſt the Glaſs Lights upon, which are to ſlope back to the Paling, for ſheltering the Fruit, as Occaſion requires; between theſe Glaſs Lights muſt be Bars cut out of whole Deal, about Four Inches wide, ſo made, that the Glaſs Lights may reſt in them. Theſe Bars muſt always remain fix'd, as in a Frame for a hot Bed. But the Figure will explain the Manner of this Frame more eaſily to us.

If we had a mind that the Glaſs Lights ſhould not ſlope ſo much as they muſt by this Fall from the Upright, we may have a Line of whole Deals on the Top of the Paling, to project their whole Breadth over the Trees, and ſo to let the Tops of the Glaſs Lights fall in an Inch or two under them.

At each End of this Frame muſt be a Door ſhaped to the Profile of the Frame, to be open'd, either the one or the other, as the Wind happens to blow.

If a Frame of this Nature be made in the Summer Seaſon, we may Plant it the ſame Summer, with the Sorts of Fruit I have mention'd, except only the Grapes; for I have not yet experienc'd whether Vines will bear tranſplanting in the Summer, as I have done other Trees: Peaches, Plums, Nectarines, Abricots, Apples, and Gooſberries, I have ſucceſsfully removed when their Fruit has been full grown upon them, and we have Inſtances enough of Pears, that do very well, which have been tranſplanted about Midſummer; there is now one at Mr. *Fairchild*'s, *Hoxton*.

I find by the Planting theſe Trees in Summer, that they make very good Roots before Winter, and are ſo well ſtored with Sap againſt the following Spring, that they ſhew no Sign of their Removal; but bear extreamly, and make very good Wood. And eſpecially I think it neceſſary to take this Advantage, if we deſign to force them ſooner than ordinary to Bloſſom; becauſe, unleſs the Roots are well furniſh'd, the Fruit cannot be ſufficiently nouriſh'd. Beſides, by this Summer Planting, the Trees ſeldom or never throw away their Strength in Autumn Shoots, or make any attempt towards it, till the Froſts in *September* and *October* ſtop their Deſign.

If we ſhould perceive their Deſire to ſhoot at Autumn we ſhould by no Means be tempted to encourage ſuch Shoots, either by covering the Frames with the Glaſſes, or laying hot Dung to the Back of the Paling; for it would induce the Bloſſom Buds to open Imperfect, and ſo looſe their Promiſe of Fruit the following Spring; but we muſt allow them Time for the Juices to digeſt, before we begin to force them.

I find by Experience that we hurt our Trees, if we apply our Heat before *November*. And I find likewiſe, that about the Middle of that Month, or towards the End, is Time enough to bring us ripe Cherries, both Duke Cherries, and thoſe call'd *May* Cherries, in *February*. And at the ſame Time likewiſe, the Heat may be uſed for Abricots, ſo as to make the Maſculine Abricot as large in *February* as Duke Cherries, and ripen them the Beginning of *April*.

Abricots, tho' forced in this uncommon Seaſon, will thrive and proſper well for many Years; but Cherries do not ſeem to bear this Alteration in Nature ſo well as the Abricots, however I have known them hold Seven Years in good Plight.

Some of the forward Sorts of Plums have been try'd, and ripen about the End of *April*, and I judge that the *Anne-Peach* would be ripe about that Time, or a Week later; and Mr. *Fairchild*'s early Nectarine, which is a great Bearer, would, in my Opinion, ripen much about the ſame Time as the Maſculine Abricot, if they were to be both forced together, and the Brugnion Nectarine would ſoon follow.

The Gooſberries, which are of themſelves apt to bud out early, would, undoubtedly, by this Means, be brought very forward, that is, to have Green Fruit fit for Tarts in *January* and *February*, and might probably ripen about the End of *March*, or Beginning of *April* at fartheſt; and altho' there is a Way of preſerving Green Gooſberries all the Year about, yet we find ſo great a Difference between the Preſerv'd-Gooſberries, and thoſe freſh gather'd from the Trees, that the Price of the latter is Eight or Ten Times more than that of the former, when Green Gooſberries firſt appear'd in the Markets; they were ſold this Year, on the Third Day of *April*, for Eight Shillings *per* Quart; but if they had had the Aſſiſtance of a little Heat, they would have been much larger in *February*, and higher

flavour'd

flavour'd, and conſequently would have been more eſteem'd.

The Curran likewiſe, which tends to ſhoot forward, might, by that Heat which brings the Cherries in *February*, be forc'd to ripen its Fruit in *April* or ſooner; for naturally the Heat or Temper of Air which ripens the *May* Duke-Cherry, brings the Curran ſo forward in its Fruit, that it is hardly Three Weeks later than the Cherry, in ripening its Fruit.

We might alſo Plant a Row or Two of Strawberries, cloſe to the Back of this Frame, and they ſhould be of the Scarlet Kind. We may expect from theſe, Strawberries ripe at the End of *February* or Beginning of *March*.

The Vines likewiſe which I have mention'd, may be brought to Bloſſom in *February* or *March*, and have ripe Fruit in *May*.

Among this Fruit we might here and there have a monthly Roſe-Tree, and the Border might be planted with Early Tulips, Hyacinths, Junquils, and Narciſſus Polyanthos, and then the monthly Production of this Frame would be in *December* Hyacinths, and ſome Tulips.

JANUARY.

Hyacinths, Tulips, and Green Gooſberries, Cherry Bloſſoms, Strawberry Bloſſoms, Abricot Bloſſoms, Peach Bloſſoms, Plum Bloſſoms, and the young Roſe Buds beginning to appear.

FEBRUARY.

Some of the later Tulips, Junquils, Narciſſus Polyanthos, Roſes, Green Gooſberries, Green Abricots, ripe Cherries, Green Peaches, Green Plums, and towards the End, a few ripe Strawberries. Likewiſe we may then expect the Vines to put out their Bloſſoms, and the Currans to be pretty large.

MARCH.

Tulips, Roſes, Junquils, Narciſſus, Duke Cherries, Strawberries, Green Gooſberries, Green Abricots, Green Plums, and about the End perhaps, if the Weather be favourable, ſome Currens, beginning to turn, and ſome ſmall Green Grapes.

APRIL.

Roſes, Strawberries, the Maſculine Abricot ripe, ſome Duke Cherries yet remaining, ripe Gooſberries, ripe Currans, and about the End, ſome Early

Plums, and the Early Nectarines; and Peaches ſo forward as to ripen at the End of this Month; and alſo the Grapes ſo much forced as to ripen the next Month, and about the End to be in full Perfection.

But I come now to ſpeak of the Method of Planting, Pruning and Ordering theſe Fruit Trees, that they may give us theſe Rarities in the Months I have promiſed them: And firſt, Of the Planting them.

We are to underſtand, that contrary to what we have ſaid of Planting Trees againſt Walls, theſe Trees muſt be planted cloſe to the Paling; for tho' I adviſe to plant Wall-Trees with their Roots at a little Diſtance from the Wall, for their better Nouriſhment; the Caſe here is very different; for the Roots will run under the Pales, and draw Nouriſhment equally from the Earth about them; but the Foundations of Walls lye too deep in the Ground to ſuffer the Roots of Fruit Trees to draw Nouriſhment from the Wall Side.

Again, In ſuch a Frame we need not Plant our Trees at greater Diſtance than Four or Five Foot, or at proportionable Diſtances, according to the Shoots they have upon them; if they had been trained in Eſpalier, or againſt Walls, Two or Three Years beforehand, it would not be amiſs, becauſe of filling our Frame more ſpeedily with bearing Wood. For my Part, I ſhould not ſcruple removing Trees that had ſtood Seven or Eight Years againſt Walls, rather than want thoſe that are Bearers for theſe forcing Frames; or if they were of a much greater Age, they may be ſafely tranſplanted by a New Method.

The Gooſberries, Currans, and Roſes, will ſerve to fill up the ſmall Spaces at the Bottom of the Paling, while the Cherries, Abricots, Peaches, Nectarines and Plums, employ the higher Parts of the Pales.

When we come to Pruning theſe Trees, we may follow the ſame Method of Pruning the ſeveral Sorts as is recommended in my Month of *February*, in my preceeding Papers; but the Time of Pruning and Nailing muſt not be the ſame, for this Reaſon: In the Forcing Frames, our Spring begins in *November*; but in the common Caſe of Stone-Fruit againſt Walls, the Spring does not begin till the End of *January*, or in *February*, and there we leave our Trees unprun'd, till the Spring begins to ſtir, leaſt the Froſts ſhould damage them, and alſo that they might not be wounded till they had Strength enough, and a favourable Temper of Air to grow freely, and help their wounded Parts. Now as the Caſe is with the Trees againſt the Paling where the Spring begins in *November*, and the Air will be ſo temper'd by Art to ſet the Trees a growing, and no Froſts can come at them, I have found it neceſſary to Prune ſuch Fruit-Trees about a Week before I began to apply any Heat, and put up all the Glaſſes as ſoon as they were pruned.

In the Nailing the Trees to the Pale, every Branch and Shoot ſhould lye as cloſe as may be to the Pales, for there will be a Months Difference between the Ripening of the Fruit which touches the Pales, and that which lyes Two Inches from them, nor in theſe Frames does the Fruit which grows next the Root, always ripen firſt; I have ſeen the Tops of the Trees have Bloſſoms and Fruit, a Month or Six Weeks ſooner than the Bottom; ſometimes a Branch has been full of Bloſſoms, when Ten or a Dozen more, growing upon the ſame Tree, have not ſtirr'd till the Fruit of the firſt Blower has been almoſt ripe, and yet the Tree has done very well; ſo that 'tis not uncommon for ſuch Trees to have Fruit ripening upon them near Three Months.

Now, as for the Gooſberries, we ſhould pick out ſuch Plants as will ſpread; and beſides laying as many Shoots to the Paling as we can conveniently, we may leave others at a diſtance from the Pales, to follow the firſt in Fruit. I obſerv'd before, we may have them bear the firſt Year, as well as if they had not been tranſplanted, if they are taken up in the Summer, and managed after my new Method. The Currans may be order'd in the ſame Manner, as well as the Roſes. But we muſt note, That the beſt Sort of Roſe for this Purpoſe, is the Cluſter monthly Roſe, and theſe Roſes ſhould always be top'd about the End of *July* or Beginning of *Auguſt*, to make them fling out a great Quantity of Flower Buds, when we apply the Heat to the Pales.

We now come to conſider the Manner of laying the hot Dung to the Back of the Pales, and what Proportion of Air theſe Plants require while we are forcing them.

The Dung which is deſign'd for this Uſe, ought to be toſs'd up in an Heap ſome Days before it be lay'd to the Back of the Pales, that it may yield a Heat every where alike, and be conſtant. When it is fit to apply to the Pales, we muſt lay it Four Foot wide at the Baſe, and let it ſlope to Two Foot at the Top, the Height in all ſhould be at firſt within Four Inches of the Top of the Pales, and in Six Weeks Time it will ſink to about Three Foot, and then we muſt apply ſome freſh; the firſt Heat doing little more than Swelling the Buds of the Trees, and bring them to a Green Colour, or, at moſt, barely ſhewing the Colour of the Bloſſom Buds; but this happens to be ſooner or later, as the Froſt has had leſs or more Influence over the Buds. It helps very much to forward the Bloſſoming of theſe Trees, to cover them with the Glaſs Lights, when the Froſts happen; for tho' the Froſts will not deſtroy the Bloſſoms, yet the more the Froſt comes at them, the dryer they will be, and the harder they will be to open. It muſt be obſerv'd likewiſe, that no Opportunity of Showers be deny'd them, if the Weather be tollerable mild, till the Buds begin to ſtir; but, after that, let the Glaſſes remain over them conſtantly, till the Sun begins to have ſome Power. In the mean while, let the Doors at each End be open'd when the Sun ſhines warm, and the Wind is not too ſharp; and if this does not happen during the Space of Fourteen Days, then open the Doors at both Ends, and put up Matts of Baſs or Canvas over the Door-ways, to correct the Winds, and cauſe the Air to circulate in the Frames.

About Three Changes of Dung will go near to bring our Cherries ripe in *February*, allowing each Parcel to remain a Month at the Back of the Pales; but if *April* proves cold, as it has done this Year, we muſt continue our forcing Heat till the Weather in *May* is ſettled, for our Plums, Peaches, Nectarines, Abricots, and Grapes; but while theſe laſt Fruits are growing, as they will be in *March* and *April*, open ſome of the Glaſſes in the Mornings when the Sun is warm and the Winds ſtill, and give them ſuch gentle Showers as happen to fall; but never let the Rain come at them when they are in Bloſſom, for it is plain from Experience, that when the Rain falls upon the Bloſſoms, before they are ſet for Fruit, they will rarely come to Good.

Now where Forcing Frames of this Kind are kept, the Dung, when it has loſt its Heat, may be laid into Heaps, to rot, for the Benefit of ſtubborn Grounds. And we ſhould obſerve that, when we plant theſe Frames, we ſhould plant ſuch Fruits as come forward, together; and the latter Fruits, by themſelves: For when the forward Fruits have done bearing, it would be prejudicial to them to give them any more Heat, as they muſt have, if they are ſet promiſcuouſly among the late Fruits, which perhaps may require artificial Heat till *May.*

To render this Sort of Frame ſtill more pleaſant and uſeful, we ſhould have one, which beſides the Fruits already mention'd, ſhould have its Border chiefly diſpoſed for bringing forward Peaſe, Beans, Cabbage-Lettice, young Sallads, Kidney-Beans, ſome Artichokes, Cauliflowers, and Naſturtium Flowers, and Early Minth.

I have ſeen ſome of the Second Dwarf Peaſe which were fit to gather about the Tenth of *January*, being cloſely planted to the Pales, and kept cloſe to them with a Packthreed; and I have heard of ſome that were ſow'n about the Middle of *September*, and were only glaſs'd in the Nights, to keep them from Froſts till the Beginning of *November*; and then the hot Dung being apply'd, they had Fruit ready to gather about *Chriſtmas*.

The Beans next to this Row of Peaſe were fit to gather about the Middle of *February*, and the Minth was very good from *November,* till there was enough in the Natural Borders. In an open Part of ſuch a Border there has been good Cabbage Lettice, about the Middle of *February*, they were of the brown *Dutch* Kind; and thoſe Lettices which were cabbaged in *October*, have kept very ſound till *January*, chiefly the Imperial Lettice.

When the Peaſe are gone, which will be about the End of *January*, we may refreſh the Earth, and ſet Kidney Beans of the *Baterſea* Kind; which will begin to run by that time Beans are gather'd, that is, about the End of *February*, and about the firſt Week in *April*, will be fit to gather, and continue to bring freſh Fruit from Day to Day till the End of *May*.

The Naſturtiums being ſown about *November*, or at the End of *October*, will Bloſſom about the End of *April*, or Beginning of *May*. And Artichokes, by this Aſſiſtance, will perhaps be fit to cut about the Beginning of *February*; but theſe, I think, take up too much Room to reward our Pains.

The Produce then of this Frame, will be in *November*, Cabbage-Lettuce, Minth, and young Sallads.

In DECEMBER.

Minth, young Sallads, Cabbage-Lettuce of ſeveral Sorts, and Green Peaſe.

In JANUARY.

Minth, young Sallads, Cabbage-Lettuce, and Green Peaſe.

In FEBRUARY.

Minth, young Sallads, Cabbage-Lettuce, Beans, ſome Green Collyflowers and Artichokes.

In *March* we have theſe continued, and about the End of *April*, we have Kidney-Beans and Naſturtium Flowers. Beſides the Fruits, as in the other Frames.

To bring Cherries in *December*, it has been practiſed to pull off all the Bloſſoms of a Tree as ſoon as they were Budding out in the Spring, and the Tree kept very dry from Rains, all the Summer; and about the End of *July*, or in *Auguſt*, give it gentle Waterings, by little and little; ſo that about the End of *September* it has been full in Flower; we muſt then keep the Glaſſes over it, and about the End of *October*, if the Weather be cold, or Beginning of *November*, apply the Dung to the Back of the Pales, and give freſh once a Month; ſo we may expect ripe Cherries in *December*.

If we have Two of theſe Frames, they ſhould ſtand about Twenty Foot a-part, for the greater Freedom of the Air, and that the Sun may have the Opportunity of warming the Ground in the Front of the back Frame.

The Morello Cherry, which is apt to come late, will hang a long time upon the Tree, even till the End of *October*, and I believe, if we were to ſhelter ſuch Trees from the Froſts with Matts or Glaſſes, the Fruit might remain a Month longer upon the Tree, and perhaps till *December*, for it is not apt to rot as other Cherries do; this Cherry likewiſe is very apt to Bloſſom twice in a Year, the firſt about the End of *April*, and the ſecond Bloſſom, about the End of *July*. Now 'tis likely that the Cherries which I have ſeen upon theſe Trees in *October*, were the Fruit of the ſecond Bloſſom. A curious Member of the *Royal Society*, *William Tempeſt*, Eſq; had a Cherry of this Sort, if I miſtake not, ripen'd in *November* from the ſecond Bloſſoms. I would adviſe therefore, the taking off all the Spring Bloſſoms from a Tree or Two of this Sort, to make it Bloſſom the better for a Crop of Winter Fruit; 'tis the moſt hardy of all the Cherries.

It is obſervable, that Currans will remain good upon the Trees till *October*, if the Buſhes are well matted up as ſoon as the Fruit is colour'd; but it muſt be a very dry Seaſon when the Matts are put on. I am of Opinion, That we have many Sorts of Fruits which will hang upon the Trees all the Year about, and be fair to the Eye all that Time, if they are kept from the Froſts. Mr. *Fairchild* has now one of the Nonpareile Apples;

upon a ſmall Tree, in a Pot, which ſeems capable of holding good till the Bloſſoms of this Year have ripen'd their Fruit.

We ſhould likewiſe provide ſome Beds of Strawberries, chiefly of the White and Scarlet Wood Kinds, to bear Fruit in *September* and *October*; and the Hautboy-Strawberry likewiſe, will bear Fruit at that Time of the Year; but all theſe muſt have their Bloſſoms pinch'd off in the Spring, as ſoon as they begin to appear, and the Plants kept dry, till about the Middle of *July*, and then gently refreſh'd with Water. This Method will certainly make them bear as I ſay; but they ſhould be ſhelter'd from the froſty Nights in *September*, with Matts upon Hoops, to make them hold bearing till towards the End of *October*. From Two Beds, each 35 Foot long, and Four Foot wide, I have had near a Quart of Strawberries a Day, from this Autumn Bloſſoming.

But I come now to mention what Helps we may expect from hot Beds, towards the Furniture of the Table in the Winter Months; and that, with good Management, may be very conſiderable: As Kidney-Beans, Aſparagus, Cucumbers.

As for Kidney-Beans; I once ſow'd ſome about the Middle of *July*, and they began to bear Fruit about the End of *September*; but not being ſhelter'd from the Froſts, which were pretty ſharp about the Middle of *October*, the Plants were loſt. A ſecond Tryal was made by a Friend, who ſet ſome of the Dwarf-Kidney-Beans at the End of *July*, in common hot Bed Frames; but did not put on any Glaſſes till the ſmall Froſt at the End of *Auguſt* began, and then only cover'd them a Nights. Theſe began in *October*, about the 15th, to have Beans upon them, and, without any artificial Heat, he gather'd Beans till the Middle of *November*. The following Year, I had Baſkets made a little open on the Sides, and about Ten Inches over, ſuch as I have preſcrib'd for Cucumber Plants in my new Improvements; in ſome of theſe I ſet Beans the End of *July*, and, in others, I planted ſome about the Middle of *Auguſt*, and placed them in Frames, for the Conveniency of covering them when the Froſts began. About the Middle of *October* I had a hot Bed made, to yeild a very gentle Heat, and ſet my Baſkets of Plants upon it. The Beans planted in *July*, had Fruit much about the ſame Time; but thoſe ſet in *Auguſt*, did not Bloſſom till the Beginning of *November*, and, about the End, had Fruit fit to gather; and all this while the others yeilded Plenty of Beans.

About the End of *November*, I had a freſh hot Bed made, and put into it only the Kidney-Beans raiſed in *Auguſt*, and gathered good Fruit from them till near *Chriſtmas*, and I believe they would have continued good till *January*, if they had been taken care of; ſo that I think we need not doubt of this Rarity at an eaſy Rate, if it is cultivated with Judgment.

It might be well, to conſider the ſeveral Sorts of hot Beds which I have treated of in my new Improvements, and in my monthly Papers for the preceeding Year, and particularly of the hot Bed made of Tanners Bark, in the Obſervations concerning the Ananas by Mr. *Telende*.

Aſparagus, and the Manner of Forcing it in Winter, I have treated of in my former Works, ſo that we may have it from *November* till *April* that it comes naturally. This Year indeed the Seaſon was ſo much forwarder than uſual, that I ſaw Aſparagus growing in the Natural Beds in the firſt Week of *March*, which was a Month earlier than ever I have ſeen it come up about *London* without Forcing.

We have had a late Demonſtration that Cucumbers may be brought to bear Fruit in *January*, by ſuch Management as Mr. *Thomas Fowler* gave them; and it is as evident to me, that they may be brought to bear Fruit in every Month in the Year, with Care and good Judgment; but it muſt be a Man of true Spirit and Ingenuity that undertakes it, and he muſt not want Neceſſaries; and indeed thoſe Neceſſaries, conſidering the Value of ſuch Productions, are but trifling; but were they made never ſo expenſive, yet they will not do without a briſk Genius, to uſe them according to Art.

The Reaſon why I ſay that Cucumbers may be fit for the Table every Month in the Year, is from what I obſerv'd the laſt Year. The common natural Cucumbers laſt tolerable good till the End of *Auguſt*, without Spotting, tho' they run upon the Ground; and if we take Care to let ſome Cucumber-Vines run up Sticks againſt Walls, they will have very fair Fruit till the End of *October*, without Spots, but eſpecially if they are cover'd in the Nights from Froſts; and in *November* and *December*, Mr. *Fowler*, Gardener to Sir *Nathaniel Gould*, among his Cucumber Plants, of various Ages and Degrees of Growth, had Fruit ſet, which he could have brought to Perfection, if he had thought proper; but this he only did by the by, for Experiment Sake: His Aim, as he told me when he firſt began, was to cut Cucumbers on *New-Years-Day*; which he very judiciouſly brought to paſs. And in *February* and *March*, we have had Cucumbers cut in ſeveral Places beſides, this Year; and, for the other Months, there is no Doubt of having them in Plenty.

While I am ſpeaking of hot Beds, I cannot avoid mentioning a very curious Contrivance of an ingenious Gentleman, *Samuel Molyneux*, Eſq; which will, in my Opinion, be of great Uſe in Gardening, and take up very little Room: There muſt be a Frame made of Wood, in the Manner of a hot Bed Frame, ſuppoſe about a Yard long, and Two Foot over, with a Glaſs Light to cover it, and wier'd at Bottom, ſo as to hold a ſufficient Depth of Earth, for the Nouriſhment of the Plants it will contain.

We are then to provide a Box of the ſame Length and Breadth, of about Ten Inches deep, to be fill'd with Sand, for the Frame to ſtand upon, the Bottom of this Box to be a thin Iron Plate; Thirdly, We muſt cauſe a Box to be made of Iron Plate, proportionable to the Box of Sand, ſo deep that a Lamp may burn in it; and at one End of this Box there may be an Outlet for the Smoak, to be uſed as we ſee Occaſion. Upon this Iron Box, which may be made to move upon Wheels or Rollers, we are to ſet the Box of Sand, and upon that the Frame of Earth; I ſuppoſe the Iron Plate at the Bottom of the Box of Sand, may ſerve for the Top of the Iron Box where the Lamp is to burn.

The Oyl which may be uſed for the Lamp, will coſt about Six-Pence *per*

Quart, and a Quart of Oyl divided into Eight Parts, will laſt burning ſo many Times Twelve Hours.

If we conſider that ſuch a Body of Sand will hold an Heat for Eight or Ten Hours when it is once warm'd through, we need not keep the Lamp always burning, ſo that perhaps then a Quart of Oyl may ſerve a Fortnight; but there may be a Thermometer placed in the Earth, within the Frame, to ſhew us when the Lamp may burn, or when it may be put out, and a little Experience will inform us of the juſt Quantity of Oyl neceſſary to be expended. In my Opinion, Heat may be regulated to any Degree we deſire, by this Invention; if it is too moderate we may take away ſome of the Sand, and if too violent, we may add more. Beſides, we may move this hot Bed from Place to Place, that is, it may ſtand Abroad in fair Weather, and be ſhelter'd in a Greenhouſe, when the Weather is very ſharp and froſty.

But in the moving of it from Place to Place, I think it adviſable to fix its Face always to the South, and not for the Sake of getting a little Sun to change it ſometimes to the Eaſt and Weſt, for it is the Nature of Plants always to ſtand ſtill, and never to change their Face from the Point they were firſt directed to; and this has been ſo much regarded by the old Planters, that they direct us, when we plant Trees, to ſet always that Side of the Tree which ſtood towards the South, as exactly as may be, to point the ſame Way; and even among the ſmaller Plants, I think 'tis reaſonable to do as much, for they are under the ſame Law of Nature.

There are Two or Three Things more I ſhall mention relating to this Garden, before I ſpeak of the Walls which are to encloſe it: The firſt is, the Method of bringing Beans to bear early with ſafety, and without the Uſe of hot Beds. When we ſet our Beans for a forward Crop, we ſhould put a good Quantity of them into ſuch Places as may be cover'd with ſuch Frames as are uſed for hot Beds, when the Froſts begin; and by that Means, if all thoſe that ſtand abroad ſhould be deſtroy'd by Severity of Weather, we may plant out thoſe which have been preſerv'd under the Frames, in their Places, and they will proſper very well, and bear Plenty of Beans, if they have not been too much confined, or have not been drawn too much under the Glaſſes; for then they would be tender in the Shank, their Joints wide, and their Fruit weak, and few in Number. I have try'd this with good Succeſs; and whether the Plants of Beans have been ſhelter'd or not, they may be tranſplanted very well in the Spring, tho' they are Four or Five Inches high, and even in *May*, if we cut them down within Two Inches of the Ground, a Week before we tranſplant them.

The next Thing is, To ſow Cucumbers the Beginning of *May*, in Drills, the Seeds may be ſet about Ten Inches aſunder, and the Drills may be a Foot a-part. When the Cucumbers have made their ſecond Leaf, ſet a Line of Bruſh-Wood Stakes about Five Foot high, between the Lines of Cucumbers, and they will run up theſe Stakes of their own Accord, and bring very good Fruit till the End of *September*, and even in *October*. We may note, that Cucumbers, thus raiſed, without tranſplanting, if they have the Liberty of running up Stakes, will not be ſubject to the Rot or Canker, as I have experienced.

Laſtly, We ſhould have in this curious Garden, Conveniencies for raiſing of the Ananas or Pineapple; which I have deſcrib'd in my monthly Papers of the preceding Year.

Thus having gone through what I propoſed in deſcribing the Frames for forcing of Fruits, Flowers, *&c.* out of their wonted Seaſons, I come in the next Place to inform my Reader of the Method of Building the Walls which ſhould partly encloſe this Garden, and may be ſo order'd, that we may forward the Fruits planted againſt them as we ſhall ſee convenient; and I ſhall be the more particular in my Deſcrption of theſe, becauſe it is not every where in *England* that we can find hot Dung enough for hot Beds, and there are many Countries where Coals are in ſuch Plenty, that the Expence of warming Walls of ſeveral Hundred Foot long will ſcarely amount to Thirty Shillings *per Annum*, for the ſmalleſt Coal, ſuch as is generally counted good for nothing, except mending the Highways, will do for this Uſe.

The Walls I ſpeak of ſhould be expoſed to the South Sun, for the Walls lying to the Eaſt, Weſt, and North Aſpects, as they are not ſufficiently in the Sun's Way to bring Fruit forward, ſo they may be built after the common Manner.

The Walls then which lye to the South-Sun, ſhould be built Eight Foot high, with Fireplaces at the Back, at Twelve or Fourteen Foot diſtance from one another. From each of theſe ſhould run a Flue of Nine Inches ſquare, parallel with the Border, about Four Foot and half from the Center of the Fireplace, and then riſe in an upright, about a Foot and half, and be return'd towards the Peer over the Fireplace parallel to the firſt, and riſe to an upright as before, to be return'd back again in courſe with the firſt. And theſe Turnings of the Flue muſt be continued till it comes near the Top of the Wall, and lets it ſmoke out at a Chimney over the Fireplace. We are to note, That theſe Sort of Flues may be carried both from the right and left of a Fireplace, and by that Means the Fires being about Twelve Foot diſtance from one another, the whole Wall may be regularly warm'd at once, if we think proper, or about Ten or Eleven Foot of Wall may be warm'd at a Time by one Fire only.

The Border on the South-Side may be rais'd ſo high as that the Earth might lye againſt the Bottom Flue, to be warm'd the better,

This Wall ſhould be Two Bricks thick, for the better forming the Flues, as well as for its Strength; and for the better regulating the Flues, and for the greater Eaſe of the Builder, there ſhould be made on purpoſe Tile-Bricks of Eighteen Inches and Quarter long, Nine Inches and a Quarter broad, and Two Inches and a Quarter thick; which will at once cover the Flues, and reach the whole Thickneſs of the Wall. Now conſidering the Space which will be vacant in the Flues, ſuch a Wall will hardly take up more Bricks than a Wall of a Brick and Half thick.

When this is done, we muſt provide Frames and Glaſſes, in the Manner of thoſe uſed againſt the Paling I have already treated of, only with this Difference, that if we have a mind to force a ſingle Tree, only that Part where the Tree is, may be cover'd with Glaſſes, and ſhut up.

The Border may be Four or Five Foot wide; and if the Glaſſes were to be ſet upright, and a Covering of Sloping Glaſs from thoſe to the Wall, one might then have Room to walk within-ſide. By the Help of this Contrivance, we may have every Thing mention'd in the forcing Frames, as above; and one might add Carnations too, to be kept blowing all the Winter, and the *Spaniſh* Jeſſamine, and if they were nail'd againſt the Walls, would open their Flowers very large.

But theſe Walls would likewiſe be extreamly uſeful, to forward our late Kinds of Grapes and Pears, and with good Management, might in a manner place us in as warm a Climate as Thirty Degrees Latitude. And beſides, here our Crops of Fruit would never fail us, if the Trees were in a Bloſſoming Condition, and were well prun'd, and the Advantage that might be gain'd by the extraordinary Number of Fruit, and its ſuperior Excellence, would very ſoon return the Expence of the Glaſs Frames, and the Trouble of making Fires.

The Pears which we ſhould cultivate againſt ſuch a Wall ſhould be thoſe which are brought to Table in the Winter, as the Colmar, Bon Chretien, *&c.* which want Sun at our Autumn, to give them their true Flavour; ſo that if we force them to Bloſſom about Six Weeks or Two Months ſooner than uſual, we may be ſure to have their Fruits as excellent as they are any where in *Europe.*

So the Grapes which might be help'd by theſe Walls, are all the Sorts of Frontiniacks, the Raiſen Grape, and every other Sort of late Grape, even the Canary Grape, only by bringing them to Bloſſom in *March*; there would then be Summer enough for their Growth and good Ripening; but againſt this Wall alſo, we muſt not forget to have ſome of the forward Sorts of Grapes, to ripen about the End of *May*, as they they have done already in *England*, by ſuch Means.

To conclude, I ſhall inſert a Method of making a hot Bed by Means of Fire, for the Service of thoſe Gardeners who have but little Opportunity of getting hot Horſe-Dung. This I learn'd from Mr. *Benjamin Whitmill*, a curious Gardener at *Hoxton.* He preſcribes, to make a Frame of Brickwork of any Length, but as wide only as a common hot Bed, to have a Fire-place at one End, to paſs into a Flue which ſhall wind from Side to Side till it reaches the other End, and diſcharges its Smoke by a Chimney; the Top of theſe Flues may be cover'd with Square Tiles, or ſuch Tile-Bricks as I have mention'd before; and when the intermediate Spaces between the Flues are fill'd with coarſe Sand, cover the Whole with Square Tiles, and raiſe the Wall about Ten Inches above the Pavement, ſo that we may cover the Pavement as deep with Sand, if we ſee Occaſion; then upon this Sand place ſuch Frames as are commonly uſed for hot Beds, with Wire at the Bottom, to hold the Earth in them, and that the Earth may receive the Heat of the Sand. And, I am of Opinion, it may be as uſeful as any hot Bed, and be more laſting and leſs troubleſome.

We may ſee the Method of the Flues for the great Wall, in *FIG. II.*

Since I have written this, I have learn'd from the curious Mr. *Dubois* at *Mitcham*, ſomewhat more than I have yet related, concerning the Production of Peaſe in the Winter: That Gentleman informs me, that he gather'd Peaſe this Winter, from about Six Plants which were ſow'n in a Pot late in the Autumn, and that had ſtood expos'd abroad for ſome Time, and ſhelter'd, during the rude Seaſon, in the Conſervatory; they were of the Second Dwarf-Pea Kind, which bear plentifully, and were trained upon Sticks; the Peaſe gather'd at one Time yeilded, when they were ſhell'd, about half a Pint, which turn'd to good Account conſidering the Room they fill'd. And I think it would be an agreeable Amuſement for ſuch as have Conſervatories, to cultivate, either this Sort of Pea, or the ſmalleſt Dwarf, in Pots, ſo as to have them all the Winter long without extraordinary Trouble.

I forgot to mention, That this curious Garden ſhould have one Part of it diſpos'd for Muſhroom-Beds, after the Manner they are propagated about *Paris*.

A LETTER

To —— TROWEL, *of the* Middle-Temple, *Eſq*; *concerning the Growth of Tulips; with ſome Hints concerning the Circulation of Sap*, &c. *tending to diſcover a Method of* Breaking *Breeding Tulips, or making the Plain Flowers become Strip'd.*

SIR,

I Have lately had an Opportunity of Viewing and Conſidering ſeveral Collections of Breeding Tulips, and have gather'd a few Remarks concerning them, which hitherto has been but little obſerv'd, tho' I believe the Breaking or Striping of Tulips, very much depends upon them.

Firſt, We are to obſerve that a Tulip does not preſerve its Root Two Years together, but the Root that was taken out of the Ground laſt Year, is quite loſt this Year, in the Leaves, Stem, Flower, and Seed; and while theſe Parts are growing, and by that Means diminiſhing the Root they ſpring from, the Juices which circulate through them, are framing a freſh Root, bordering upon the Place where the firſt was; ſo that when the Plant has perform'd all its Summer Work, there remains no old Root at all; but the Flower-Stem ſticks to the Side of the new made Root.———You may be ſure this Root is new, becauſe the Stalk ſtands on the Outſide of it, and every one knows that the Flower-Stalk always comes out of the Middle of the Root that was planted.

While Tulips are under ſeveral Degrees of Growth from the very firſt putting forth of the Leaf, the Root declines daily, and a new Root is forming itſelf and daily encreaſing; and when the Flower and Seed is fully perfected, the old Root is entirely waſted, and the new one is fully compleated.

To diſcover this, I took up ſeveral Tulip Roots in different Degrees of Growth, and in Proportion to the Times they ſeverally required to perfect their Seed; I obſerv'd the new Roots were greater or ſmaller, as there was leſs or more of the old Root left. Before the Flowers were colour'd, I found the old Roots were but half decay'd, and the Cloves in thoſe Roots on the Outſide began to dry.

When they were in full Bloom, the Cloves which were remaining were all inclining to dry, and there were Three, and ſometimes but Two in Number, in the old Root; and then the young Roots were very ſtrong.

While the Tulips were in this State, I took up ſeveral Roots of the large Red breeding Tulips with Black Bottoms, the Roots and Stalk of one of them, which I ſplit through the Middle, I have delineated, for the better explaining of this Relation.

Fig. III. *A* is part of the old Root with its declining Cloves, from the Bottom of which ſprings the Flower Stalk *B*. This Flower Stalk is partly fix'd to a hard Subſtance, like the Kernel of an Hazle-Nut at *C*, and partly at the Bottom of the new-framing Root *D*, which is likewiſe of a Subſtance like the Kernel of a Nut; and from thence the Cloves of the Root take their Riſe. *E* ſhews the Point of the new Root from whence the

Fibres will ſpring the next Year, as C does the ſame Part where grow the Fibres of this Year, and here is plainly a Correſpondence between all the Parts, both of the new and old Roots; but 'tis the old Root which only receives the immediate Nouriſhment from the Earth by its Fibres.

When we ſplit the Flower-Stem of a Tulip, we find a great Number of Veſſels running through the Stem till they come at the Flower, and are then branched into the Petals or Flower-Leaves, and diſtribute Nouriſhment into the *Stamina*, the *Apices*, and *Piſtillum* of the Flower; but where the Flower-Leaves are ſet on, the Stalk becomes larger, and is of much harder Subſtance than in other of its Parts.

Again, when we examine a whole Tulip Plant in Flower, and firſt cut the Stalk horizontally, within an Inch of the Root, we find the Sap-Veſſels much cloſer ſet together than they are towards the Top of the Stem. Theſe Veſſels as they riſe from the Root, branch themſelves into the Leaves which grow upon the ſeveral Parts of the Stalk.

I infer from theſe Obſervations: *Firſt*, That all theſe Parts, *viz.* the Flower-Stem, the Leaves, the Flower, and the Seed, are all perfected from the very Root that we put into the Ground, and prove more or leſs luxuriant, only as the Soil is more or leſs favourable to the Tulip; the Nouriſhment the Tulip receives from ſuch Soil, is taken in by the Fibres.

Secondly, That by the Waſting of the old Root, and the Growth of the new one, which both correſpond immediately with the Flower-Stem, it is plain that the Sap circulates through the Whole, for the new Root has no Fibres to nouriſh it and make it grow from the Earth, and therefore can be nouriſh'd only from ſome Veſſels in the Stem upon the Return of the Sap which goes up from the old Root, and this Return of Sap muſt be conſtant, as the Growth of this new Root is conſtant; for was this new Root to be nouriſh'd only at ſet Times, it would loſe in the Intervals what it gain'd at the Times of its Nouriſhment; but Experience ſhews us the contrary.

Thirdly, This new Root grows till the Flower and Seed is perfected, and then the old Root is quite decay'd, the Flower-Stalk drys, and parts from the new Root without Difficulty, which it will not do while the Stalk is green, and the Juices flowing in it.

Fourthly, We are to obſerve, that it is from the new Root we are to expect the Change or Alteration in the Stripes of the Flower; and tho' the Root we put into the Earth for Blowing this Year, ſhould bring a plain Flower, yet, by the Want of Nouriſhment which may happen to it by being planted in Brick, Lime, or Stone Rubbiſh, the Parts which are framed in the new Root may be ſo modell'd as to bring its Flower into Stripes the next Year. Therefore when we plant plain Tulips in Rubbiſh, to make them break into Colours, we muſt not expect to ſee any Alteration the firſt Year, for it is the new Roots, that are form'd in the Rubbiſh Soil, that muſt blow, to ſhew the Effect of Planting in ſuch a Soil. The old Roots had already in them their Properties fix'd before we put them into the Ground, which could admit of no Alteration but of Blowing taller or lower, as they had more or leſs Nouriſhment from the Soil they were planted to blow in.

But it may be perhaps, that ſome of the Tulip Roots which we planted laſt *September*, might bring ſtrip'd Bloſſoms this Year; but then we have good Reaſon to ſuppoſe, that thoſe Stripes were regulated in the Roots that were made the Year before.

It is obſervable, that ſome Tulips already broke or come to ſtripe, will one Year abound in the dark Colours, and the next Year will come finely mark'd, as that Tulip which is call'd the *Vulcan* will do. I conceive therefore, that while a Tulip blows with a very large Share of the dark Colours, the new Root has imbibed a large Share of thoſe Juices which will afford the brighter Colours, and ſo on the contrary; for in thoſe Tulips which are call'd Breeders, I obſerve that the Maſs of Colour in their Flowers, before they break, is a Compound of ſeveral Colours which ſimply appear in their Stripes when they come to break; and, that theſe Breeders cannot break into any Stripe of Colour but what is of one or more of the Colours which make the Compound Maſs in their plain Flowers. As for Example:

The *Bagget Primo*, which is counted one of the beſt breeding Tulips, brings its plain Bloſſoms of a pale Purple, wherein is a large Share of White, a moderate Share of a deep Lake Colour, and a ſmall Share of Blue. Theſe Three Colours rightly blended together, will make exactly the Colour of the Flower of this *Bagget*. And when this Flower comes to break and ſtripe, which happens from theſe Colours being ſeparated, then the Stripes are always of thoſe Colours which were uſed to make the Compound Colour in the plain Flower of that Sort.

When the Lake is quite alone, it ſhews its Gaiety; when mix'd with a great

Share of Blue, 'tis much darker; when with a great Share of White, of a Fleſh Colour; and the Blue and White brings a Sky Colour; and ſo the Stripes will produce as much Variety as can be made, from mixing theſe Colours in different Proportions with one another. The Reaſon why theſe Colours come to be ſeparated, ſeems to be from the Structure of the Veſſels which are form'd in the new Root, ſome being made in ſuch a Manner as to receive only ſuch Juices as will yield one Colour, and another ſuch as will yield another Colour, juſt like the Veſſels in Animal Bodies; ſome yielding Red, as in the Veins; ſome White Liquor, ſuch as Milk in the Breaſts; and others, ſuch as are of the Colour of Urine. Now I ſay, it is as plain, that there are Veſſels in Plants for the Circulating and Secreting of Juices, as that there are Veſſels in Animals which diſtribute and ſeparate Juices in every Part of their Bodies.

It alſo ſeems neceſſary that this Circulation of Juices ſhould be continued in the Tulip till it has perform'd all its Offices, ſuch as perfecting its Flower-Stalk, its Leaves, its Flower, *&c.* for the better adapting the new forming Root to the ſame Mode of Growth, and imprinting in it every Natural Perfection of the Original it took its Riſe from; therefore I ſup-

I ſuppoſe it is, that the new Root continues Growing all the Time that the old one is performing its Offices, that the Principles of every Part may circulate through it.

But the next Breeding Tulip which I ſhall take notice of, is that which is call'd the *Beau Regard*, which is of a much paler Purple than the *Bagget Primo*, its Maſs of Colour is composed of a very ſmall Share of Blue, a great deal of White, and about as much of the deep Lake Colour as of Blue. This Flower, when it comes to ſtripe, ſhews the Colours ſeparately, that the plain Flowers are compoſed of, as the *Bagget Primo* has done before.

The Breeder which is call'd *Van Porter*, has its plain Flowers of a reddiſh Purple, where the Lake prevails more than the Blue, and there is leſs White than Blue; the various Colours which may be produced from theſe Three Colours, may be expected in thoſe of this Sort which become ſtrip'd.

The great *Dutch* Red Breeder, with the Black Bottom, has its plain Flowers of a dirty Red Colour, tho' compoſed of Two Colours, which are ſeparately as beautiful as can be imagin'd, a fine Yellow, like that of Gamboge, and a Carmine Colour, make this unpleaſant Maſs of Colour; but when this Flower ſtripes, and the

Colours are ſomewhat ſeparated, the Variegations are extreamly fine.

The *Dutch* Red Breeder with a Yellow Bottom, is of a darker Colour than the former; the Colours which compoſe the Maſs, are ſuch as make the former; but in this there is a little Black intermix'd, and when it breaks, its Stripes partake only of the Colours in the Maſs, either ſimple or compound, like the others before-mention'd.

We obſerve ſometimes that the White is very prevailing in a Flower when it breaks; and ſpotted only here and there with other Colours, which were blended in the Maſs of the plain Breeder; one may then not unreaſonably ſuppoſe that the new forming Root poſſeſſes thoſe Juices which make the darker Colours, and will ſhew them in its Flower the following Year.

Having now gone through my Obſervations concerning the Growth of Tulips, I ſhall recommend to your Tryal a Thought or two, how to make the Colours ſeparate in plain Tulips, and bring thoſe Stripes which make them ſo much admired: And that the Colours of the Flowers circulate with the Juices all over the Plant, ſeems certain to me, becauſe of thoſe Green Leaves which are now and then, upon certain Occaſions, ting'd with Scarlet, Yellow, and other

Colours, only common to the Flowers on whoſe Stalks they are found. And that theſe Colours, or their Rudiments, likewiſe circulate through the new Root in ſome Proportion is evident, becauſe that Root produces Flowers partaking of the ſame Colours of the Flower produced by the old Root.

As the Veſſels which correſpond between the old Root and the Flower, and from the Flower to the new Root, are all of them in the Flower-Stem, I am of Opinion, if we could pinch ſome of them without wounding them all, or arreſt the Sap, ſo that it ſhould not circulate with its wonted Freedom, then, I ſuppoſe, that the new forming Root, would, by ſuch Checks, be brought to ſeparate its Colours in ſuch Manner as to produce Stripes of thoſe ſimple Colours that compoſed the Compound Colour in the Maſs. One Way of doing this may be, by binding the Flower Stem pretty hard with Packthread, a little before the Flower opens, for this Binding will, in my Opinion, either preſs or wound ſome of the Sap Veſſels ſo much, that the Courſe of Sap will be prevented in them, and the new forming Root, by that Want, will become varied from the old Root; or if by a fine Lancet one could cut a few of them, it might perhaps have a good Effect; but whether they would not heal or cloſe again, I am in ſome Doubt. The Veſſels I would adviſe to be cut, lye juſt within the thin Skin of the Flower Stem; but I think the Pinching of them with Packthread is the ſurer Way.

There has been many Trials made, to alter the Colours and Properties of Tulips, as the Steeping the Roots in Liquors of ſeveral Colours, and the putting into the Cloves of the Roots, the Powders of ſeveral Colours, and the Planting them in colour'd Earth: But theſe Trials have all prov'd vain, as well as that of Drawing colour'd Silks of ſeveral Sorts, through the Roots, to ſtripe their Flowers. The Experiment which I propoſe, cannot hurt any of your Roots.

We may alſo obſerve, that now and then we ſhall find a Root form'd upon the Flower-Stem, an Inch or Two above Ground, which ſeems to diſcover that in that Flower Stem are Principles of all the Parts that belong to a Tulip Plant, and thoſe could not all be in that Part, unleſs the Sap circulcated throughout the whole Plant.

I ſhall conclude this Letter with an Obſervation made by *Charles Dubois*, Eſq; who, in his Gardens at *Mitcham*, ſhew'd me a ready Proof of the Saps Circulation in the great Garden Spurge, which immediately upon cutting off a little Shoot, the wounded Veſſels in the Stalk, emit ſo large a Quantity of milky Juice, that it continues dropping for near Two Minutes, till the Air and Sun thickens it ſo much, that it ſtops the Mouths of the wounded Veſſels. And that this Sap flows through Veſſels which have their Riſe in the Root, and have a Correſpondence with others which return, it is evident in the Leaves of the Plant without the Help of a Microſcope; but eſpecially if we cut one of the Leaves a-croſs with Sciſſers, the Milk will immediately ſhew itſelf at the Mouths of thoſe Veſſels which are wounded.

The *Apocinum* or *Dog's-Bane-Tribe*, which have milky Juices, will alſo ſhew us the ſame Thing, eſpecially thoſe that have the largeſt Leaves, and are the quickeſt Growers; and, I am apt to think, that ſome of them have Leaves tranſparent enough for us to diſcern the Milk circulating through them, as we do the Blood in the webb'd Part of a Frogs Foot, or Fiſhes Tail; but the Leaf we examine muſt be growing upon the Plant while we make the Obſervation, and the Microſcope fix'd in ſome Frame to be kept ſteddy; we may alſo uſe a Lamp, to help the Diſcovery.

The Veſſels which ſerve to convey this Juice through the Leaves of Plants, may be eaſily obſerv'd on the Back of the Fig-

Tree Leaf, where we ſhall find that they are all branched into one another; and what Sap flows through one, correſponds with all the reſt; ſo that the Juice which comes into the Veſſels in the Leaf, through ſome of the Pipes or Veſſels in the Foot-Stalk, circulates through all the Veſſels in the Leaf, as well downwards as upwards, as the following Experiment will demonſtrate. If we cut or ſtamp a ſmall Hole, between any Two of the capital Veſſels in the Leaf, we ſhall find the White Sap flow from the wounded Veſſels on one Side, or about half the Circumference of the Hole we have cut; but rarely will it iſſue from the other Veſſels that are wounded, becauſe the Communication is broken; but if we make ſeveral of theſe ſmall Holes in a Leaf, without cutting the larger Veſſels, we ſhall find the Veſſels in ſome, flinging out Juice towards the Root of the Leaf, and ſome flowing with Juices from the Foot-Stalk towards the upper-part of the Leaf, ſo that the Sap is running through all the Branches of the Veſſels, whether up or down, at the ſame Time; and the Plant is encreas'd in Bulk, by taking into all its Parts ſuch Shares of the Circulating Juices as each is appointed to receive. I am, SIR,

Your moſt Humble Servant,
RICHARD BRADLEY.

An

An Account of Ranuncula's rais'd from Seeds by Mr. WILLIAM POTTER, *Gardener, at* Mitcham *in* Surry. *In a LETTER to* J. S. *Eſq*;

SIR,

WHen I laſt had the Happineſs of your Company, you deſired I would, as Occaſion offer'd, ſend you an Account of ſuch Curioſities as occurr'd to me in the Way of Gardening, and I have now the good Fortune of acquainting you with one of the moſt ſurpriſing Productions of Nature that I have ever met with, either at Home or Abroad, and I doubt not but it will be the more acceptable to you, as you are a Lover of Flowers.

I was lately at *Mitcham* in *Surry*, to view a Collection of Seedling Ranuncula's raiſed there by Mr. *William Potter*, a Gardener, having firſt heard of their Excellence from ſeveral of our beſt Judges, who had ſeen them in the Strength of their Bloom. I confeſs, among all that I have ever ſeen of the Ranunculus Kind, I have yet never met with any that were ſo agreeable to me, either in Beauty of Colours, Variety of Make, or Largeneſs of Bloſſom; and tho' there are many Hundred diſtinct Sorts of them, I am yet puzzled to ſay which of them pleaſed me beſt: There are many of them which have all the Properties that we could expect in a good Flower; and the others are ſo widely different from whatever has been ſeen in *England*, that they ſhine in ſuch Properties as my Knowledge of Flowers could never give me Hopes of expecting; in a Word, they are *Nonpareils*, and deſerving of a much better Character than I am capable of giving them.

Their Colours are of all Sorts, in ſeveral Degrees, from the cleareſt White to the darkeſt Purple, but the Azure-Blue is only wanting, to carry them through all the Colours, to the deepeſt Black. Some of theſe Flowers are of one Colour alone, others with their Petals or Flower-Leaves ſtrip'd with various Colours which mark quite through, as the Carnations do, which are call'd *Flakes*. Some are powder'd or pounc'd with the gaieſt Colours, like the Carnations call'd *Picketees*. Others again, are ting'd on the Edges with Varieties of Colours; and ſome have their Centers ſtain'd with Colours directly oppoſite to thoſe of their other Leaves.

As for the Make or Figure of theſe Flowers, there are ſome ſhap'd like the Ranunculus, call'd the *Turks Turbant*, and ſuch Sorts as we have uſually cultivated in our Gardens, extreamly double, and blow very tall; others take the Form of Roſes of ſeveral Kinds, and have their Flower Leaves of that Shape, and diſpos'd in that Manner. Some again, are ſhaped like the *African* Marygold, and others like the *French* Marygold, even reſembling theſe in their Colours. Some flower like Double Anemonies, and others like the fineſt Double Poppies, bringing Bloſſoms as large as Peonies. Some are of a Star-like Figure, and others turning their Leaves back, ſo as to form the Figure of a Globe. And there are many of ſuch odd Figures, that I know not what to compare them with.

The greateſt Part of theſe Flowers blow near Two Foot high, and branch liberally from the Root; ſo that it is not rare for one Root to bring near Forty Flower-Buds to Bloſſom with good Strength: The Manner of their Growth, and bringing their Bloſſoms, is much like that of the great Yellow Ranuncula's of the Meadows, which hold in Flower near Three Months, and are very hardy.

Many of theſe are Semi-Doubles, which bear Seeds that ripen well, and come out of the Ground with little Trouble; and ſome of theſe are extraordinary, for having their Seed bearing Veſſels of a bright Yellow Colour. But 'tis an endleſs Work, to mention every remarkable Difference in them; you ſhould ſee them, to admire them enough.

Tho' the Original of theſe Flowers came from *Perſia*, I find the Offspring are very hardy, and reſiſt the Froſts, even better than our old Sorts of Ranuncula's, and will flouriſh any where, if the Ground be rightly prepared for them.

The Natural Soil in Mr. *Potter*'s Garden is pretty light, with a gravelly Bottom; but his Flower-Beds are made with the following Mixture, which he gives me Leave to mention, that every one may have the ſame Succeſs that he has had, in Blowing this Sort of Flower: It conſiſts of rotted Leaves, rotted Wood, Cow-Dung, Horſe-Dung, and ſome of the Surface of the Natural Earth; which he gathers altogether, by the Side of a Wood, into an Heap, and ſifts very fine for his Beds, after it has lain together for ſome Time. And when theſe are prepared, he plants his Roots, about *Michaelmas*, ſo as to bury the Bud of the Root about Two Inches and half deep. When they begin to come out of the Ground, we may ſhelter them in froſty Weather with Mats; and, as they begin to riſe, cover the Bed with a freſh Coat of the aforeſaid Earth, about half an Inch thick, which will greatly ſtrengthen the Roots, and eſpecially help the new forming Roots or Off-ſets: But this muſt be done carefully, without injuring the Leaves or their Stalks; for every bruis'd or broken Stalk injures the Root, till the Plants come to flower, and even then too, if the Bloſſoms are frequently crop'd. There is one Reaſon in particular, for the Coating the Beds with a little freſh Earth, which is, that the Ranunculus Root which is put into the Ground, always produces its Off-ſets near an Inch above it, and as they grow, the Mother-Root decays; and even theſe new Roots help the good Bloſſoming of the Plant, becauſe they join with the Flower Stalk, and help to nouriſh it, as well as receive Nouriſhment from it; and therefore this freſh Earth helps both them and the Flowers.

Now, when I conſider that your Soil is very ſtrong and binding, I ſhall take the Freedom to offer you a little Advice from my own Practice, in a Soil which was ſo ſtiff that it was judg'd fit for nothing but making of Bricks, and even upon ſuch a Soil I had extraordinary Succeſs, in the Culture of Ranuncula's, tho' it is ſuppos'd by many, that a Clay Country will not blow a Ranunculus, or even ſuffer it to live, altho' the Beds are prepared with proper Soil. I confeſs, was the common Method of preparing Beds in ſuch a Soil to be follow'd, we muſt expect the Roots to be deſtroy'd, or to produce very weak Flowers; for the uſual Way of making theſe Beds, is to dig deep Trenches in this Clay Ground, and fill thoſe Trenches with good light ſifted Mould, which Practice I find to be wrong, for if we once dig Trenches in Clay Ground, they ſerve only to receive and hold all the Water that falls; ſo that the fine Earth which is put into them, becomes a perfect Bog, which corrupts and chills the Roots, altho' they are planted ſomewhat above where the Surface of the Clay reaches; yet this muddy and ſtanding Water, at the Bottom, has ſurely an unwholſome Vapour which riſes from it, and the Earth, in the upper part of the Bed, is kept ſo continually moiſt by the Wet below, that a Ranunculus cannot, by any Means, endure it; and I have experienc'd, that the beſt Drains that can be made from theſe Sort of Beds cut in Clay, will not ſufficiently drain them of the Wet they receive, even tho' the Ground lies upon a hanging Level. I therefore find it adviſable, in ſuch Ground, only to take off the ſuperficial Soil which covers it, three or four Inches deep, without entering the

Clay, and then lay a little Coat of Sea-Coal Aſhes, or for want of them, ſome Lime Rubbiſh, and upon any of theſe, to raiſe my Bed about Nine Inches or a Foot thick, with good prepared Earth, ſuch as I have mention'd above, or as I uſed to do about one third Part ſandy Loam, as much old Melon Earth, and the reſt rotted Wood and Leaves, but theſe muſt be well mix'd together, and ſifted before we uſe it. But I have had very good Succeſs likewiſe in making my Beds for Ranuncula's of Mould that I have taken out of great Woods, I mean the Parings of the Surface, which has been chiefly rotted Leaves and Wood, that has lain there, I ſuppoſe, many Years. The Reaſon I choſe that Soil, was, becauſe I obſerv'd the common Ranunculus call'd *Pilewort*, grew and proſper'd in it wonderfully. And a Gardener at *Acton*, who made his Ranunculus-Beds of old Tanners Bark, had his Ranuncula's proſper ſo well in it, that he had ſeldom leſs than Eight or Ten Roots Encreaſe, for every one he put into the Ground.

I muſt obſerve likewiſe, that the Paths or Alleys between theſe Beds, ſhould be fill'd up with Sea-Coal Aſhes, or Lime, or Brick-Rubbiſh, or Sea-Sand, to draw the ſuper-abundant Moiſture from the Beds, and keep the Ground about them as dry as may be; or elſe, if theſe are difficult to be had, we may lay the Alleys with Graſs-Turf, which will likewiſe help to keep the Beds dry in the Winter, which the Ranuncula's require. The raiſing the Beds thus, upon the Top of the Clay, will ſuffer the Wet that falls, to paſs away without incommoding the Plants, and you may then expect a good Shew of Flowers. I have known this Kind of Flower blow extreamly well under a South Wall.

As any extraordinary Things in this Way ſhall occur to me, I ſhall ſend you an Account of them: But I have detain'd you longer than ordinary upon this Occaſion, becauſe I imagine you will have Part of this Collection in your Garden, the next Seaſon. I am,

SIR,

Your moſt Humble Servant,

RICHARD BRADLEY.

THE
Monthly Regiſter
OF
EXPERIMENTS
AND
OBSERVATIONS
IN
Huſbandry and *Gardening.*

For the Month of MAY, 1722.

Obſervations concerning the Improvement of Beans *and* Peaſe. *In a Letter to Mr.* R. TROTTER *of* Newbold Vardon *in* Leiceſterſhire, May 3. 1722.

SIR,

YOur great Curioſity in *Huſbandry* gives me an Opportunity of communicating to you ſome Thoughts and Experiments which will be of great

Advantage to thoſe who cultivate Beans and Peaſe, either for Seed or otherwiſe.

Firſt, It is a common Cuſtom amongſt the Farmers, when they are once provided with any Sort of Seed, to ſow the ſame Sort continually upon their Farms, and thereby render it, in Courſe of Time, quite unprofitable; for where any Sort of Seed, tho' never ſo good at firſt, when 'tis brought into a Country, has been cultivated for Three or Four Years ſucceſſively in the ſame Air and Scituation, tho' the Spot of Land be varied from Acre to Acre, or thoſe Grounds enrich'd from Time to Time with Manures; yet, Experience ſhews us, that ſuch Seed will degenerate and loſe its firſt Excellence; ſo that, as I have obſerv'd in ſome of my monthly Writings, I ſtill adviſe, that when we once become Maſters of a good Sort of Seed, we ſhould at leaſt put it into Two or Three Hands, where the Soils and Scituations are as different as poſſible; and every Year the Parties ſhould change with one another; by which Means I find the Goodneſs of the Seed will be maintain'd for ſeveral Years. For Want of this Uſe, many Farmers have fail'd in their Crops, and been great Loſers. When I have had the beſt Sorts of Lettuce, Onions, Peaſe, Beans, and other

ther Seeds, I have found that, in a Year or two, they have degenerated in my Garden; but the Seeds of them which I gave away to my Friends, preſerv'd their firſt Goodneſs; and I have receiv'd ſome Seeds of their ſaving, which have brought me as good Crops as I had at firſt.

2*dly*, It has been a great Neglect, that our Farmers have not been curious enough to enquire into the ſeveral Sorts of Beans and Peaſe, which Kinds of them produce the greateſt Crops. I have known ſome Kinds of Peaſe that have produced about Forty Cods each Plant, and each Cod Two, or at moſt, Three Peaſe apiece. So that, to make an eaſy Computation of the Increaſe of one Plant, it might produce in a Year (or Summer) about a Hundred Peaſe for Seed. On the other hand, We have ſome Sorts of Pea that will produce about Thirty Cods upon a Plant, and one with another, will yield Seven or Eight Peaſe in each Cod, and then a ſingle Plant will yield in one Year after the Rate of Seven in each Shell, Two Hundred and Ten Peaſe, which is above double the Number of thoſe mention'd above, and the Peaſe are alſo larger than thoſe that bring ſo few. So that in the Meaſure, there will be near two Thirds Difference, between the firſt and the laſt Kinds. In Beans likewiſe it is obſervable, that ſome are apt to grow tall and long-jointed, while others are low and ſhort-jointed, and bear full Crops of Fruit, even to yield half as much more in Meaſure as thoſe do which are long-jointed. Mr. *Smith*, a good Gardener at *Putney*, is, I think, the only one who has taken notice of this, and has gain'd Profit by it. Among ſome Soil which was brought into his Garden, there was a Bean accidentally grew up, which brought a greater Quantity of Beans than ever he had ſeen before upon one Plant; he ſaved the Seed of this, and by changing it from Place to Place, became Maſter of the moſt profitable Sort of Bean in that Country, and now uſes no other Sort in his Garden. 'Tis now a Time of Year when Things of this Nature ſhould be enquired into: I have already mark'd ſeveral near *London*, and I wiſh you would do the like in the Country; for in theſe Plants we ought as much to obſerve, which are the beſt Bearers, as when we chuſe our Fruit-Trees, for the Profit will be in Proportion. Neither do I find that theſe profitable Sorts of Beans and Peaſe are leſs agreeable to the Taſte than the others; the larger Kinds are generally as ſweet as the ſmaller Sorts: And 'tis a Maxim founded upon Experiment, that the larger a Bean or Pea is, ſo much more

Room and Air it requires to perfect its Growth, and ripen its Fruit.

3dly, It is a Cuſtom among the Farmers (without great Reaſon) to ſow ſome Crops of Beans and Peaſe before *Chriſtmas*, and others early in the Spring, as in *February*, for Example; the Conſequence is, That theſe Two Crops bring their Fruit at one Time, and therefore, about *London*, the Markets are glutted with them, and their Price is ſmall. Beſides, thoſe that are put in before *Chriſtmas* are endanger'd by the Froſts, and are often loſt, which is a Hazard that we need not venture, unleſs we have Shelter for them, and the Help of a Wall; and how far that will mend the Caſe, ſee firſt Chapter of the *Remarks*, which will be publiſh'd for *April* 1722.

But let us ſuppoſe that we have Three or Four Crops, which were planted at as many different Seaſons, that all are tending to bear Fruit together, as I have obſerv'd oftentimes; we may prevent this Inconvenience two Ways: Either by Tranſplanting ſome of them, when they are about Four Inches high, or cut them down when they are about that height; and then we ſhall find a conſiderable Difference in the Ripening of their Crops. But if we let them grow till they are knotted for Bloſſom, before we cut them down, then the young Shoots which ſpring from the Bottom, will, in a little more than a Week, if the Weather be hot, ſhoot out full of Flower-Buds, and come not above a Week later than they would have done, if they had not been cut down. For the Juices in the Plant were then all ſo well digeſted and prepared for Bloſſom, that where-ever they could ſpring or appear, they muſt immediately tend to Flower; whereas, when the Juices in the main Stem were raw and undigeſted, and the Deſign of Bloſſoming was not perfect in it, then the Juices in the other Part of the ſame Plant muſt be of the ſame Kind; and a Plant cut down in that State, will fling out Off-ſets, which, beſides a Time for their Growth, muſt have due Time to digeſt and put themſelves into a Bearing Poſture; which, from Obſervation, I find to be a Month or Five Weeks, if the Weather be moderate; or ſomewhat leſs, if it is very warm.

To conclude, I muſt re-mind you of your kind Promiſe the laſt Time I ſaw you, of ſending me your Obſervations concerning the Growth of Carps, and the Uſe you make of Broom-Seed. I remember alſo, you mention'd at that Time an Improvement you had met with by double Plowing your Ground; which I deſire you will communicate, for the

Good of the Publick. In the mean while I am,

SIR,

Your Moſt humble Servant,

R. B.

P. S. There is a Sort of Pea in *Holland* which has no Skin within the Shell, ſo that the People eat them Shells and all, as we do Kidney-Beans; 'tis very ſweet and very profitable, and I hope to introduce it the next Year.

An Account of a New Method of Tranſplanting Trees of any Bigneſs with Safety, either while they are in Bloſſom, or with Fruit upon them; ſo that Gentlemen who come late to their Eſtates may, in a few Days, furniſh the Walls of their Gardens with Trees full of Fruit, or plant Wilderneſſes or Avenues that ſhall afford them an immediate Shade, and grow with as much Vigour as if they had not been tranſplanted.

IT has been a general Complaint, that Plantations of all Sorts are ſo tedious in their Growth, that under Five or Six Years, one can hardly expect our Garden Walls, or other Garden Plantations, to yield us a Quantity of Fruit ſufficient to anſwer our Expectations, or reward our Labours: Or would we deſire Shade, we muſt wait ſtill much longer for it; and there has been no Redreſs for either of theſe Grievances. I have known many noble Perſonages, as well as others, that have lamented the Want of the Secret to ſupplant Time, and call it back, or have wiſh'd themſelves Twenty Years younger, to begin Plantations to their Mind, or that they might live to reap the Fruits of their own Labours. After this Manner have many of my Acquaintance unfolded their Minds to me, and I have as often taken Part with them in their Uneaſineſs upon this Occaſion; for I was well aſſured that, upon the Foot of common Practice in Planting and Gardening, there could be no Redreſs for them.

The firſt Thoughts that I had to help them out of this Difficulty, related only to Fruit Trees; for which End I contrived the Raiſing of Fruits of all Kinds, in Caſes or Boxes, that might take to pieces at Pleaſure; ſo that theſe Trees might be remov'd with all the Earth about them, from one Place to another, with Safety: And alſo that ſuch Trees, while they were growing in the Nurſery in their Caſes, ſhould be trained in Eſpalier, ſo that, at their Removal, they ſhould fit a Wall at once without Difficulty. This I have fully explain'd in ſome of my former Works, and is now in Practiſe; but then this does not extend further than the propagating of Wall Trees.

The next Knowledge that I gain'd towards the Point in hand, was from Mr. Secretary *Johnſtoun* at *Twittenham*, where I ſaw the Advantage of Tranſplanting Trees of all Sorts, in Summer: It was a Diſcovery of that Gentleman's, and practiſed, by his Directions, with wonderful Succeſs, inſomuch that ſome Lime-Hedges about Ten Foot high were remov'd in *May*, *June*, and *July*, and they gave very little Token of Removal; large Pear-Trees and Apple-Trees were remov'd, and grew in great Proſperity; and eſpecially ſome *Scotch* Firr-Trees were tranſplanted out of a Nurſery, the ſame warm Summer, and had ſhot above a Foot, before the others remaining in the Nurſery began to ſtir or move in their Shoot. There was one Thing remarkable in theſe Tranſplantings, That the Firr-Trees had their Heads remaining upon them, which certainly contributed to their better Growth; and it is the common Opinion, That Trees of this Kind cannot be tranſplanted when they are of any tollerable Bigneſs, tho' theſe were near Thirty Foot high.

The Elm-Hedges were forced to be cut or pruned when they were tranſplanted, to put them into Form; and the Orchard-Trees were lopp'd, for the better Convenience of Carriage; however they brought good Fruit the next Year, and, I ſuppoſe, would have much more, if all their Branches, or the moſt part of them, had remain'd upon them.

The Method of Tranſplanting theſe Trees, as I have heard, was by preparing Holes for them before they began to be taken up, and the Earth taken out of thoſe Holes, was made very fine, and mix'd with Water in large Tubs, to the Conſiſtence of thin *Batter*, with which each Hole was fill'd, for the Tree to be planted in, before the earthy Parts had Time to ſettle or fall to the Bottom. A Tree thus planted in *Pap*, has its Roots immediately encloſed, and guarded from the Air, and as the Seaſon then diſpoſes every Part of the Tree for Growth and Shooting, we find that it loſes very little of its Vigour, if we have been careful of its Roots, to wound few of them at the taking it out of the Ground, or have not let them grow dry in the Paſſage from one Place to another.

The great Succeſs which attended this Manner of Planting, ſoon gain'd Credit enough to invite many to follow the Example; but as it had been an old Cuſtom to Plant in Winter rather than in Summer, it was thought neceſſary by ſome People to join that old Cuſtom to the new Invention of the Pap, and ſo all was fruſtrated, it would have been neceſſary to have thought the Tree was not in the ſame growing State in Winter that it is in Summer, and that when neither the Draught of the Tree, nor the Temper of the Air, can draw away the extraordinary wet from the Root which is contain'd in the Pap, then that Pap about the Root ſerves only to chil and rot it; when on the other hand, in the Summer, all Trees are fill'd with fluent Sap, and their chief Refreſhment is Water, which neither their own powerful Spirit of Growth, nor the Warmth of the Air, will ſuffer to remain too long about them. 'Tis a Seaſon when all Plants of the ſmaller Kinds, which are carefully remov'd, will ſtrike Root in a Day or Two, and I ſee no Reaſon why large Trees will not do the ſame in a few Days at that time of the Year; but in the Winter Months, the Roots will not renew themſelves. Therefore it is not neceſſary to tranſplant Trees in that dead Seaſon, if it can be avoided, eſpecially in Places abounding with Water; or to fill their Holes, at that Time, with *Pap*, which, for want of Warmth and vigorous Life in the Trees, muſt ſtagnate, and corrupt, and injure the Root.

Theſe Conſiderations, upon what I had obſerv'd at Mr. *Johnſtoun*'s, led me further to think of ſome Obſervations I had made in my own Garden, relating to the Circulation of the Sap, and how much that ſhould be conſider'd in Pruning, Planting, and the Ordering of Trees. In ſome large old Pear-Trees which I inarch'd into young Stocks, and had left entirely depending upon the Stocks when they had taken, having ſaw'd one of the old Trees from its Original Root. I ſay, the good Growth of every Part of the old Tree, which had no other Nouriſhment than from the young Stocks it was inarch'd into, plainly ſhew'd me, that there was as regular a Circulation of Juices as there is in Animal Bodies; and then, where ſuch a Circulation is, it is as ſure that it muſt be through Veſſels which have an immediate Correſpondence with one another, and then it is as neceſſary to preſerve theſe Veſſels entire, as it is to preſerve the Veſſels in an Animal Body entire, to help that Circulation. From whence I concluded, that at the Time of Tranſplanting a Tree, it was by no Means proper to cut off any of the Branches, or wound any of the Veſſels, if poſſible, that the Sap might circulate more freely, and the Tree might remain in better Spirit, till it has renew'd its Roots, which of Neceſſity muſt be wounded at Tranſplanting.

Now, as the Cutting and Wounding of ſome Roots of a Tree, and even among them ſome of the Capital ones, cannot be avoided, I thought it convenient to contrive a Mixture of Gums, to plaiſter over the wounded Parts of the great Roots, and prevent the Air and Wet penetrating too much into the Veſſels of the Roots; and at the ſame Time, if the Root was very large, to mark its Correſponding Limb or Branch in the Head, to be cut off about a Fortnight afterwards, in the ſame Proportion, and to be then plaiſter'd in the ſame Manner as the Root was done before.

I find this Plaiſtering of the wounded Parts of a Tree to be of great Uſe for bringing large and vigorous Shoots, and preſerving the Tree from Canker or the Rot, which will attack it by little and little, if the Mixture of Gums is not apply'd as ſoon as any Limb or Branch is cut off.

Nor muſt we have leſs Care to be ſudden in the Removal of our Tree from one Place to another; for if the Roots grow the leaſt dry, we may preſently diſcern a Failure in the Top Branches which correſpond with them; and that will require Time to redreſs, the more they fail, the longer Time they require for their Recovery. And for this Reaſon it has been thought impoſſible to remove a large Tree to any conſiderable Diſtance, tho' now I am ſatisfied of the contrary, having by Accident met with a Preparation, with which, if we anoint the Roots of a very large Tree, we may let it lye out of the Ground one Day, in the hotteſt Summer, and it will not drop or flag a Leaf; common Soap will do for Two or Three Sorts of Trees; but I find it is not agreeable to all, being ſubject to canker the Roots of many.

In this Way of Planting there is one Convenience, which is not in the common Way, and that is, that here we are not to take any Earth about the Roots, which will make their Tranſportation more eaſy. The ſmall ones, ſuch as Currans, Gooſberries, and ſuch like, together with all the flow'ring Shrubs, when their principal Roots, which happen to be cut, are dreſs'd with the Mixture of Gums, which muſt be done while the Tree is taking up; theſe muſt have their Roots immediately plung'd into a Veſſel of Water, in order to convey them freſh to the Place where they are to be planted, and then filling the Hole with Water and fine Earth well ſtirr'd together, plant your Trees in that Pap, and continue adding more Earth and Water, 'till the Holes are fill'd. We muſt then fix our Plants very well with Stakes, eſpecially if they are tall or large Trees, and as the Pap begins to harden, it muſt be carefully watch'd, to prevent Cracking, which it will ſurely do, if the Top of it is not ſtirr'd or broken a little with a Spade, and a little freſh Water and Earth pour'd over the whole, and then cover'd with Fern, or ſuch like; but green Turf is much the beſt.

I have for ſeveral Years paſt made the Experiment upon Gooſberries and Currans, in the Manner I mention, in the Months, *May*, *June*, *July*, and *Auguſt*, and they never fail'd to ripen, and carry their Fruit very well the ſame Year, and grow vigorouſly. Again, one Good which attends this Way of Planting is, that Plantations of this Kind do not require any Waterings after they are once ſettled; for they preſently renew their Roots, which thoſe Trees planted about the Winter Months will do but indifferently the firſt Year, and ſometimes not at all.

To remove ſmall Plants from Place to Place, we may put their Roots in Bladders of Water, or of Earth and Water, and carry them Two or Three Days Journey with Safety; but if the Journey be long, I rather chuſe Earth and Water finely mix'd, than ſimple Water; and a

Bladder may be tied cloſe to the Stem of the Plants, without being in danger of breaking, as a Vial would do.

By this Method, and the Aſſiſtance of the prepared Gums, and a viſcous Preparation, I have removed Peach-Trees, Nectarines, Pear-Trees, Plum-Trees, and Cherry-Trees, with Fruit upon them, both Green and Ripe, ſome of which Trees had been train'd againſt Walls upwards of Six Years; and tho' ſome of them were carried above Fifteen Miles, they grew perfectly well, and preſerv'd their Fruit. So that by this Means any Gentleman that had a Mind to furniſh the Walls of his Garden, might chuſe his Fruit-Trees with the Fruit upon them, and have them remov'd to his own Garden at a Minutes warning: And beſides the Satisfaction of knowing every Tree brought Fruit to his liking, he would have the Pleaſure to have gain'd Six or Seven Years of Time in one Day; but it muſt be conſider'd that ſuch Trees will demand a good Price; for whoever parts with them, may at that Inſtant, in point of Plantations, be reckon'd to have loſt Six Years of his Life, or to be Six Years older than he was before.

By this Method of Tranſplanting Trees, there is yet one Advantage, that if a Gentleman has planted a fine Collection of Fruit in his Gardens, and ſome Accident may happen whereby he is obliged to quit his Garden on a ſudden, his Fruit Trees may be remov'd with Safety from *May* to *Auguſt*, and he will loſe no Time, and the common Practice tells us, the other Months are favourable to the Deſign.

This Year, in *April*, I remov'd an old Standard Plum-Tree at *Moleſey*, when it was full in Bloſſom, and tho' the Three principal Roots were cut off each as thick as a Man's Wriſt, and a proportionable Number of Boughs which correſponded with them, it is now growing and has ſeveral Fruit upon it; but the Method of moving a Tree in this State, to a little Diſtance, is very different to the moving a Tree with Fruit upon it.

In the doing of this Work, a Gardener muſt firſt be very cautious in applying the Mixture of Gums, and that he does not uſe that kind of Mixture which is made for Kernel or Pepin Fruit, to a Stone Fruit Tree, or the contrary.

Secondly, He muſt take care to plaiſter the wounded Parts of the great Roots as ſoon as each of them is clear of the Earth; and if the Trees are to be carried to any great Diſtance, to anoint their Roots as ſoon as poſſible with the viſcous Preparation, for in hot Weather they will dry in a Minute.

L *Thirdly*,

Thirdly, If the Soil they are to be planted in be a Clay, we are not to make the Holes for the Trees in the Clay; for tho' we make them Twenty Foot wide, and were to fill them with the beſt ſifted Earth with Water, the Tree will decline in the Winter, tho' it will not fail when we plant it in the Summer. In the Letter concerning Mr. *Potter*'s Ranuncula's, we may ſee the Reaſon.

With the like Succeſs have I tranſplanted Two or Three Elms, about Thirty Foot high, ſo that there has been no Appearance of their Removal, their Leaves have remain'd green and bright, and are now proſperous, their Heads are full, and they afford as much Shade ſince their Removal as they did before; and by the ſame Rule I am ſatisfied, that there is not a Tree in *England* which is ſound, and is not of more weight than can be tranſported from Place to Place, but might be tranſplanted with the ſame Safety as one might plant a Cabbage Plant; but there muſt be due Time allow'd to do it in, and the Planter muſt be very careful in uſing his Mixtures and Preparations, and the Labourers as careful in opening the Roots. So that in a few Days Time, if there was a ſufficient Allowance of Men and Money, a Houſe might be encompaſs'd with a full grown Wood, and a Garden compleatly planted with bearing Trees of every Sort of Fruit.

N. B. *The Mixtures of Gums for the ſeveral Kinds of Trees, and the viſcous Preparations, will be prepared by Mr.* Benjamin Whitmill, *Gardener at* Hoxton.

To Mr. Richard Bradley.

Stoke-Newington,

SIR,

I Kept an exact Account of the Times of ſowing Cucumbers the laſt Year for a forward Crop, and becauſe I underſtand that ſeveral try'd to raiſe Cucumbers laſt Year at *Chriſtmas*, and fail'd therein, I have ſent you my Obſervations, that they may judge better this Year of the Times of ſowing than they did the laſt. I am ſure now, that I can produce a Brace of good Cucumbers in every Month in the Year, from what I have diſcover'd in the laſt Years Practice.

July the 17*th*, 1721. I ſow'd Cucumbers on the Natural Ground, to tranſplant them upon a moderate hot Bed; but theſe Plants were too forward for my Deſign.

Then I continued ſowing every Week till the 26th of *Auguſt*, and then the Plants began to do Buſineſs; for thoſe Plants that were ſown the 26th of *Auguſt*, began to ſhew Fruit the Beginning of *October*, with a very good Appearance of a Crop, but were very much troubled with Earwiggs, which would deſtroy great Quantities in a Night's Time.

In *September* I ſow'd Three Times, *viz.* on the 9th, the 19th, and the 25th; and thoſe ſown on the 25th, were the Plants that I cut my Fruit from on the 1ſt of *January*; but thoſe ſown in *October*, will bring a good Crop in *February*, with good Management. I conclude,

SIR,

Your moſt Humble Servant,

T. FOWLER.

The following Letter ſeems to come from *Farnham*, or thereabouts, as I gueſs from ſome Remarks which I have receiv'd written in the ſame Hand, and alſo from the Nature of the Soil mention'd in this. And as it relates to the Improvement of light Land by Brining of Corn, I think it very neceſſary to inſert it, with a few Remarks.

To Mr. BRADLEY.

March 20. 1721.

SIR,

FInding by your monthly Treatiſes upon *Huſbandry and Gardening*, that you diſdain not to accept of the leaſt Hints upon thoſe Subjects, I thought it would not be taken ill if I ſhould drop in my Mite.

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Dreſſing for Corn, by the Way of Brining; which applied to Wheat, or Barley, would, as he ſaid, make the pooreſt Ground bear a Crop continually, and ſo rank, as that a Peck of Wheat leſs, *per* Buſhel, would ſow an Acre. Which ſome Gentlemen in this Neighbourhood tried, with Succeſs, for Two Years; but the Undertaker came into theſe Parts no more, and, by what I find, he could not afford to Dreſs the Corn any longer at that Price, which was but Ten Shillings *per* Acre; whereas, had he demanded Twenty, thoſe who have large Farms, with much light Ground, would have been glad of ſuch a Dreſſing, for thoſe Grounds which lay at ſuch a Diſtance, that the very carrying out their Dung thither, would have ſtood them in as much.

In our Conference upon this Matter, I gueſs, that he dreſs'd with Oyl, alledging the Authority of *Virgil:*

Et nitro prius, & nigra per fundere amurca,

But we muſt conſider that Advice to have been calculated for a Country where theſe *Fæces* are cheap. But what is the Quantity proper for each Grain, and whether it ſhould be ſimple or mix'd, to make the Corn imbibe it, and at what Price to be purchaſed by thoſe who have Uſe for a Quantity, I leave to the Curious to enquire; and ſhall only add, that if ſuch a Brining could be brought to Perfection, ſo as to anſwer the Deſign at Twenty Shillings *per* Acre, it would, for all the light Grounds in home Countries, be the moſt beneficial Improvement that has been found out in theſe later Ages, and particularly to him who could keep the *Arcanum* to himſelf ſo as to have the Monopoly. If you do think it Merits to be inſerted amongſt your Ingenious Diſcoveries, I wiſh our County the Benefit of it, and you, Sir, the Credit; and am,

SIR,

Yours, &c.

T. S.

In anſwer to this Letter, I ſhall take Occaſion to obſerve, that in the common Way of Sowing Corn, our Farmers always allow too much Seed: The Grains are laid ſo near to one another, that light Land cannot nouriſh them when they grow up; ſo that for to allow a Peck leſs in every Buſhel, is but reaſonable, there will be more Nouriſhment for every Grain, and every Plant conſequently will have more Stalks and more Ears, and the Grains will be better furniſh'd. I have try'd ſeveral Brinings for Corn, and one of them ſucceeds ſo well, that I have had many Roots that have produced upwards of one Hundred Stalks a Piece. Eſpecially about the Skirts or Outſide of the Ground. The Grains were laid about Six Inches apart, and eat down by Sheep; but as the Papers now in the Preſs cannot contain ſo full an Account of this Matter as is neceſſary to be given, I ſhall leave it till the Publication of the next Month's Remarks. Only ſhall hint this by the Bye, that Twenty Shillings *per* Acre will more then pay for the Brining.

To Mr. BRADLEY.

SIR,

I Have herewith ſent you, according to your Deſire, the Liſt of thoſe Plants which flower every Month in my Garden, and am

Your Humble Servant,

T. FAIRCHILD.

* * *

PLANTS *flowering in* April.

STock-Gillyflowers, ſingle and double, white and red.

Wall Flowers, white and yellow, double and ſingle.

Plantain leav'd Ranunculus.
Tulips of ſeveral Sorts, ſingle and double.
Yorkſhire Sedum, and the Bird's Eye.
Anemonies of various Kinds, the beſt Sorts.
Collection of Ranuncula's.
Collection of Daſies.
Candytuft-Tree, plain and variegated.
Lauruſtinus of ſeveral Sorts.
Nettle-leav'd Jeſſamine, *Spaniſh* Jeſſamine, and the *Indian* yellow Jeſſamine.
Collection of Polyanthos, and Primroſe, double and ſingle.
Black Helebore with a green Flower, Fenel-leav'd Helebore.
Collection of Auricula's, and the Burrage-flower'd Bears-Ear.
Crown-Imperials, ten Sorts.
Collection of Narciſſus.
Star of *Naples*.
Simblaria.
Muſcaria.
Dens caninus.
Hypericum frutex.
Violets double and ſingle, white and blue.
The ſingle red Violet.
Hearts Eaſe of ſeveral Sorts.
Dwarf Flagg-Iris.
Virginian Colombine.
Wood Anemonies double and ſingle.
Dwarf Almond.

Dwarf Hungarian Honeyſuckle.
Frittilaries, thirty Sorts.
Perwinkle double and ſingle blue, and ſingle white.
Radix Cava.
Dwarf Medlars, two Sorts.
Purple and Aſh-colour'd Pulſitilla.
Bulbous Violet.
Double Pilewort.
Lady's Mantle.
Double Lady's-Smock.
Purple and yellow Mountain Avens.
Aloe-leav'd and Onion-leav'd Aſphodil.
Gentianella.
Ornithogalum.
Male Mandrake.
German Catchfly.
Tree Scabious.
Bladder-Nut.
White flower'd Male Cyſtus.
Starr Hyacinth.
Pearl Bugloſs.
Italian Camomile.
Calcidonian Iris.
Doronicum.
Double Saxafrage.
Double flower'd creeping Crowfoot.
Meleanthus.
Venetian Vetch.
Sea Daffodil.
Globe Flower.
Scorpion Senna.

Great blue flower'd Perwinkle.
Bird-Cherry.
Double white Mountain Ranunculus.
Sage leav'd Cyſtus with a purple Flower.
Sweet Molly of *Virginia.*
The Tree-Milkwort with blue and white Flowers.
Scarlet flower'd Horſe-Cheſnut of *Virginia.*
White flower'd Horſe-Cheſnut.
Perſian Lilly.
Double flower'd *Solomon*'s Seal.
Geraniums, ſeveral Sorts.
French Marygolds,
Oranges.
And the Aloe, call'd, by Dr. *Comelin, Aloe Africana humilis foliis ex albo & Viridi Variegatis.*
Collection of Hyacinths.

Flowers Blowing in MAY, *beſides theſe which continu'd Bloſſoming, that were mention'd in the foregoing Month.*

ORanges.
Lemons of ſeveral Sorts.
Pinks of various Kinds.
Collection of Tulips.

Lilly of the Valley.
Two Sorts of *London* Pride.
Ranunculus of the *Perſian* Kind.
Double white Narciſſus.
Sea Narciſſus.
Fox Gloves.
Sweet William.
The Mule between the Sweet William and Carnation.
Colombines.
Several Kinds of Thalictrums.
Double purple Perwinkle.
The Paſque Flower purple and aſh Colour.
Arbor Judæ.
King's Spear.
Aloe-leav'd Aſphodel.
White-flower'd Tree Scabious.
Blue flower'd Tree Scabious.
Roſemary-leav'd Buckthorn.
Citiſſus Lunatus.
Four Sorts of Corn Flags.
Ciſtus ſeveral Sorts.
Camomile.
Flagg Iris, ſeveral Sorts.
Thrift or Sea Pink, ſeveral Sorts.
Rockets.
Perſian Jeſſamine.
Lylacs three Sorts.
Peach-leav'd Bell Flower.
Hungarian Iris.
Laburnums, two Sorts.

Yellow Martagon.
Geranium, ſeveral Sorts, among which the ſweet Night ſmelling Kind.
Double white Mountain Ranunculus.
Engliſh Hyacinths, white, blue, and Peach-colour'd
The double blue Harebell.
Male Peony.
Hyacinth of *Peru*, blue and white.
Bleu Grape Hyacinth.
Atamaſco Lilly.
Tradeſcant's Spiderwort.
The *Savoy* Spiderwort.
Fraxinella, white and red.
Blue feather'd Hyacinth.
Guilder Roſe.
Yellow Jeſſamine.
Bleu Monk's-Hood.
Double white and red Batchelors-Buttons.
Germander-leav'd Chickweed.
Greek Valerian, white and blue.
Virginian Aſtragulus.
Bulboſe Iris.
Roman and fiery Lilly.
Meum.
Syringa.
Widowwale.
Honyſuckles.
Tree Cinquefoil.
Day Lilly.
Sweet Lilly-Aſphodel.
French Honeyſuckles.

Naſtertium Indicum.
French Marygold.
Lyſſimachia.
Lichnoides.
Valerian.
Double Featherfew.
Ficoides of two or three Kinds.

The End of the Month of MAY.